



The automatic shelf system optimally utilizes the floor space of an object.

The MasterVario S system can only be used as underground system.

- Single-row shelf system with lift and horizontal conveying unit
- Transfer cabin hidden in floor
- Up to 6 parking levels
- 1 to 4 cars per parking level
- For 2 to 23 vehicles
- 3 different vehicle heights (must, however, be uniform)
- Surface load per parking space; 2000 kg (optionally 2600 kg at extra cost)
- The access box is available at ground level and traversable when lowered (max. vehicle weight: 2600 kg, max. wheel load: 650 kg)

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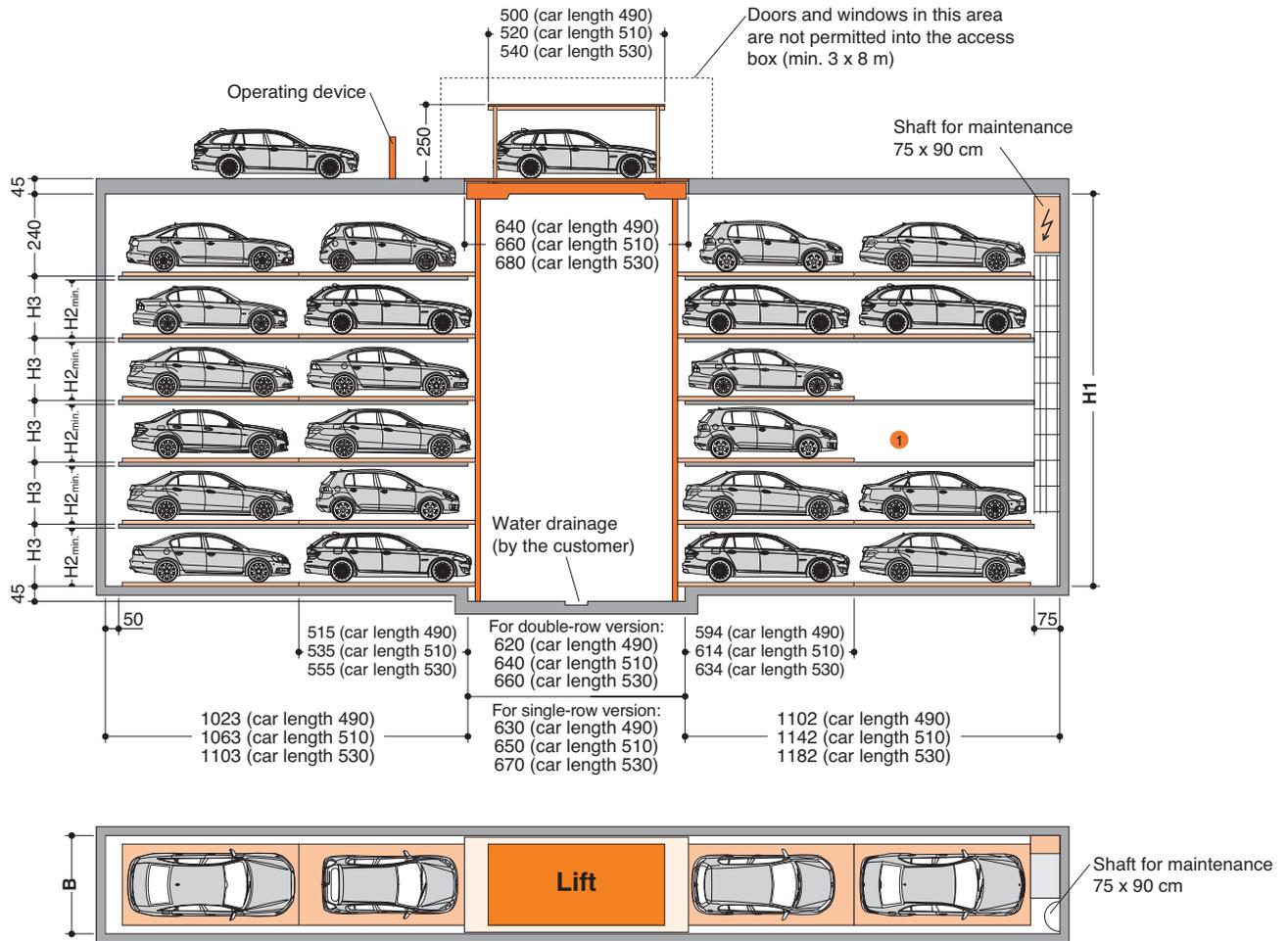
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## Dimensions

- Transfer cabin hidden in floor
- Up to 6 parking levels
- 1 to 4 cars per parking level
- For 2 to 23 vehicles
- 3 different vehicle heights (must, however, be uniform)
- Load per parking space: 2000 kg or 2600 kg
- The access box is available at ground level and traversable when lowered (max. vehicle weight: 2600 kg, max. wheel load: 650 kg)

### Surface system with two parking levels



All dimensions in cm (unless otherwise stated)

#### Height dimensions

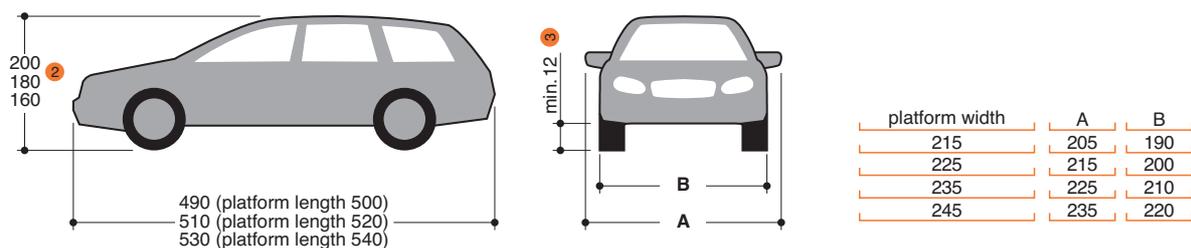
height	number of levels	car height 160	car height 180	car height 200
H1	2	445	465	485
H1	3	650	690	730
H1	4	855	915	975
H1	5	1060	1140	1220
H1	6	1265	1365	1465
H2	all	180	200	220
H3	all	205	225	245

#### Width dimensions

platform width	width B
215	270
225	280
235	290
245	300

① In case of two-row arrangement, one empty space is required for moving purposes.

## Car dimensions



② Overall height (vehicle with roof racks, roof rails, aerials, etc. are not permitted to be higher than the specified height).

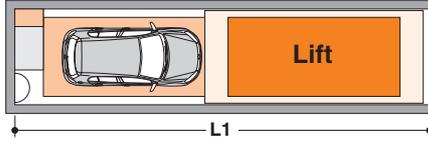
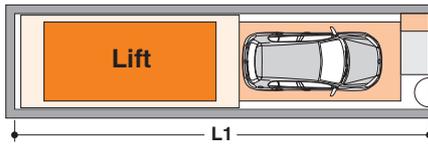
③ Minimum ground clearance of the car.

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## Arrange options

### 1 row

levels	parking spaces
2	2
3	3
4	4
5	5
6	6



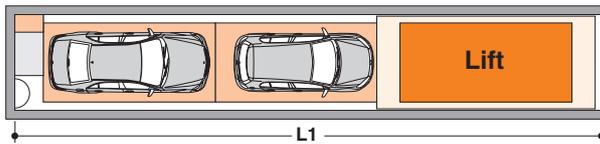
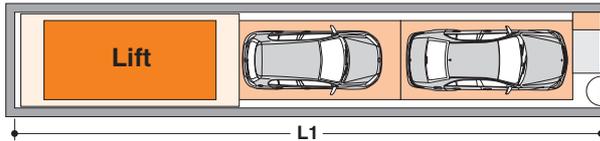
#### Number of rows: 1

overall length L1

car 490	car 510	car 530
1224	1264	1304

### 2 rows

levels	parking spaces
2	3
3	5
4	7
5	9
6	11



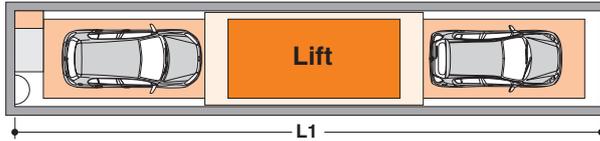
#### Number of rows: 2

overall length L1

car 490	car 510	car 530
1732	1792	1852

### 2 rows (one each in front and behind the lift)

levels	parking spaces
1	2
2	4
3	6
4	8
5	10
6	12



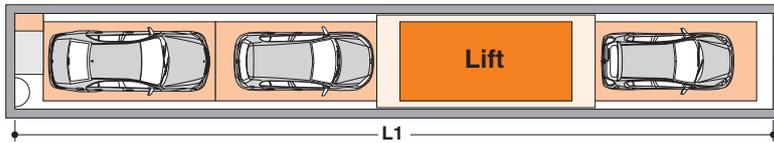
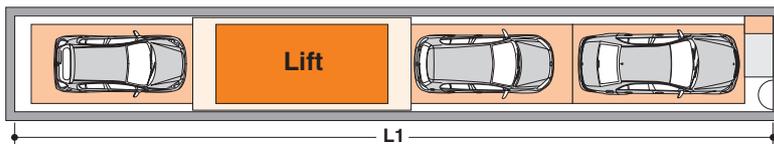
#### Number of rows: 1+1

overall length L1

car 490	car 510	car 530
1729	1789	1849

### 3 rows

levels	parking spaces
2	5
3	8
4	11
5	14
6	17



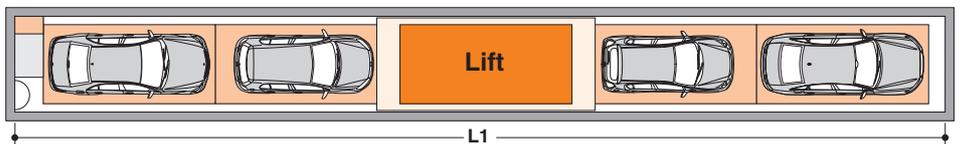
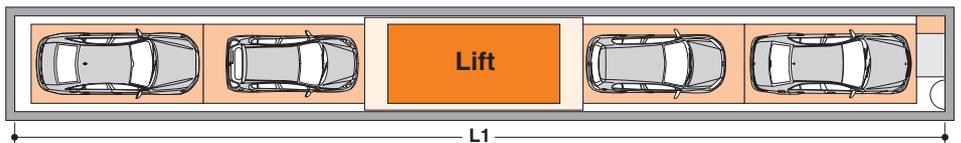
#### Number of rows: 1+2

overall length L1

car 490	car 510	car 530
2237	2317	2397

### 4 rows

levels	parking spaces
1	3
2	7
3	11
4	15
5	19
6	23



#### Number of rows: 2+2

overall length L1

car 490	car 510	car 530
2745	2845	2945

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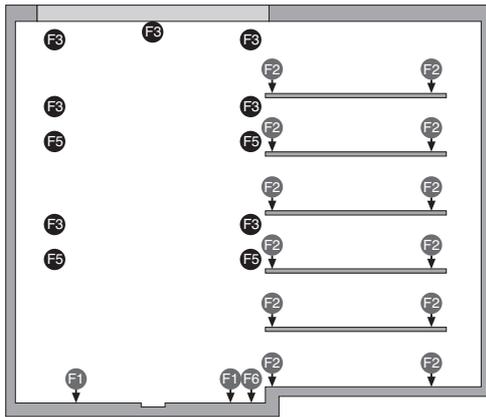
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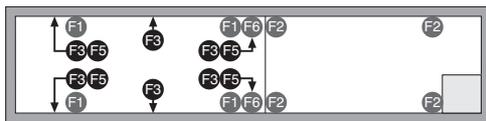
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## Load plan

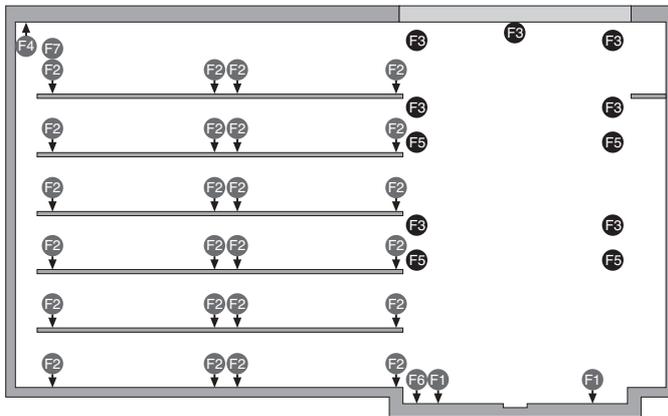
### 1 row



platform load	F1	F2	F3	F4	F5	F6 x number of levels	F7
2000 kg	+71	+6	±3	+12	±5	+8	+14
2600 kg	+72	+7	±3	+12	±5	+9	+14



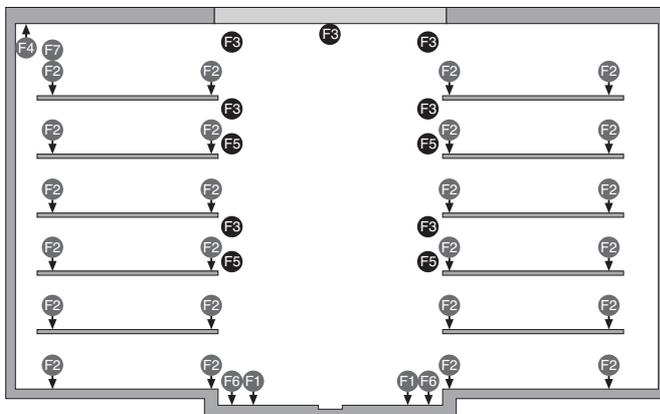
### 2 rows



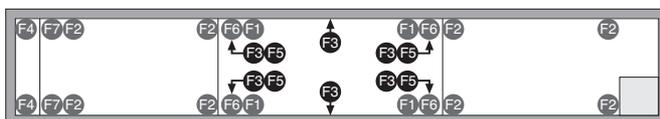
platform load	F1	F2	F3	F4	F5	F6 x number of levels	F7
2000 kg	+71	+6	±3	+12	±5	+8	+14
2600 kg	+72	+7	±3	+12	±5	+9	+14



### 2 rows (one each in front and behind the lift)



platform load	F1	F2	F3	F4	F5	F6 x number of levels	F7
2000 kg	+71	+6	±3	+12	±5	+8	+14
2600 kg	+72	+7	±3	+12	±5	+9	+14

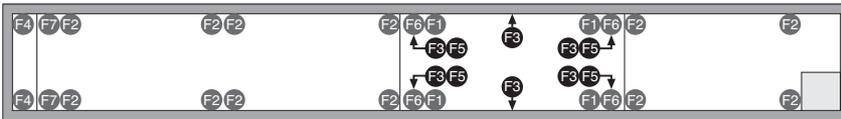
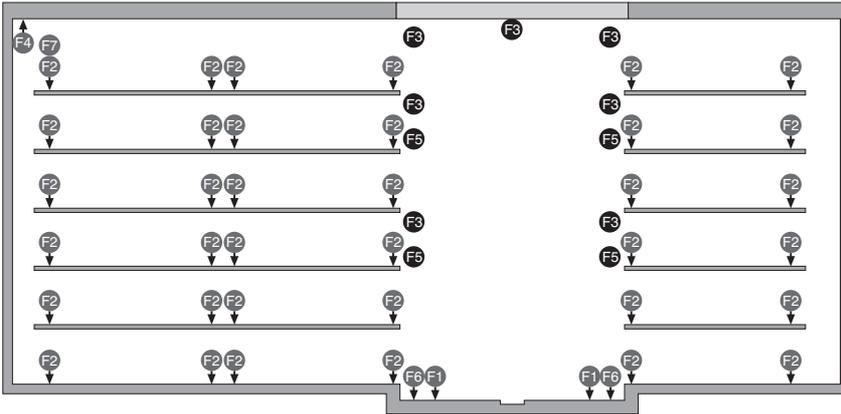


4 All forces in kN

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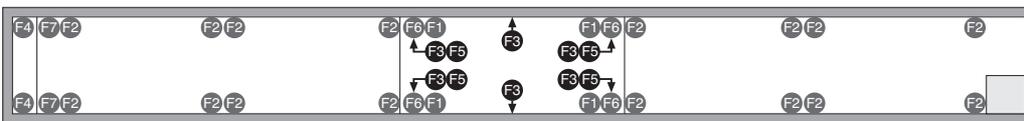
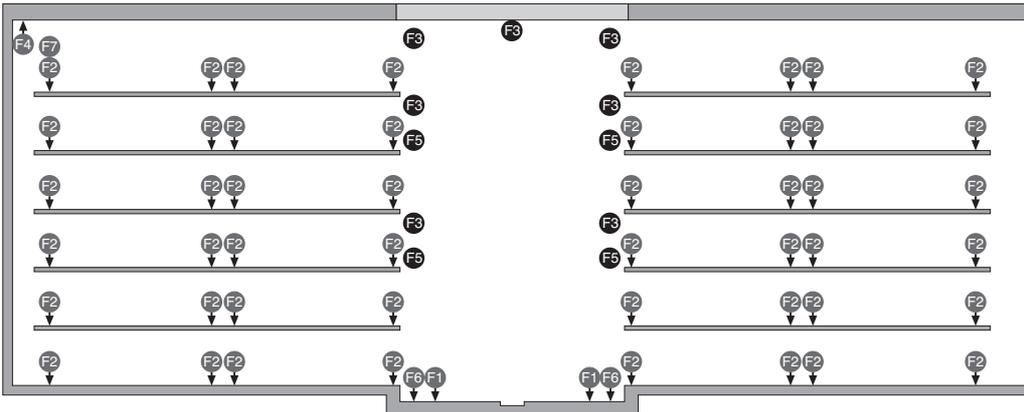
# Load plan

## 3 rows



platform load	F1	F2	F3	F4	F5	F6 x number of levels	F7
2000 kg	+71	+6	±3	+12	±5	+8	+14
2600 kg	+72	+7	±3	+12	±5	+9	+14

## 4 rows



platform load	F1	F2	F3	F4	F5	F6 x number of levels	F7
2000 kg	+71	+6	±3	+12	±5	+8	+14
2600 kg	+72	+7	±3	+12	±5	+9	+14

4 All forces in kN

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## Technical Notes

### Control system

The control system is based on a PLC industry system.

Any parking processes are initiated by an RFID chip at the RFID reader.

This RFID reader is located next to the access box.

The system can optionally be equipped with a modem for remote monitoring. For this a DSL line with a separate IP address must be installed.

### Operating device

The operating device is equipped with a text display for the user guide and with a multifunctional button. Design as free-standing column, or for integration into a wall housing.

The operating device can be arranged left and right of the entrance (optionally also on both sides)

From the control platform the access edge of the system must be visible along the entire length (distance of operating panel from access edge: max. 5 m, min. 1 m).

### Operating the system

The access box is lifted and lowered with a control system with automatic return.

The system can optionally be equipped with vehicle contour monitoring.

Once the access box is closed, the system is controlled automatically.

The parking spaces are selected via RFID chips (no remote control possible).

### Statics and construction

The steel construction is a self-supporting construction holding pallets and conveying units.

The steel construction is fixed to the ground using glue dowels, the support to the wall mainly with rubber buffers.

The depth of the borehole in the floor plate or wall is about 15 cm. Floor plate and walls are made of concrete (quality: min. C20/25)!

### Shaft cover

The shaft cover is a welded frame construction (acc. to EN ISO 13920, tolerance class C). Floor surfaces can be selected by the customer (e.g. topsoil/lawn, sand bedding/pebbles, sand bedding/pavement slabs, etc.) Consult KLAUS Multiparking regarding maximum surface loads and sealing, if necessary.

The access box is available at ground level and traversable when lowered (max. vehicle weight: 2600 kg, max. wheel load: 650 kg).

The area above the drive units is covered with galvanized stud plates.

Make sure not doors, windows and unsecured openings protrude into the area of the access box at a height of 3 meters and a length of 8 meters. If doors or windows are available in this area, they have to be locked electro-mechanically by the customer. This interlock has to be integrated in the control system for the system (windows or doors are only permitted to be unlocked if the access box is lowered. If windows or doors are not locked, the system cannot be controlled).

### Maintenance shaft

A maintenance shaft with staircase or ladders to access all levels has to be provided by the customer. The electrical cabinet is integrated in the maintenance shaft.

In addition, access through an (electrically secured) maintenance door is required in the pit shaft.

### Securing the entrance area

The system's danger area must be secured on a project-specific basis in consultation with KLAUS Multiparking.

### Lighting

Access box: min 500 lux

Storage area: min 50 lux

The lighting in the access box must be integrated in the control system.

### Water drainage from the entrance and the pit opening

Water drainage from the entrance must be achieved by the customer via a drainage channel across the length and breadth of the pit opening. A gradient of at least 2% leading away from the pit opening on all sides is only sufficient in regions with very low rainfall.

### Drainage of the pit (by the customer)

In the pit a drainage channel with connection to the public sewer network or the pump sump is to be provided. If the pump sump cannot be emptied manually, a pump has to be provided by the customer.

To prevent any danger to the ground water, we recommend painting the pit floor in order to protect the environment. When connecting the system to the public sewer network, we recommend the installation of oil and petrol separators.

### Fire protection

Any necessary fire protection measures are to be coordinated by the architect with the responsible building authorities or any other relevant authority.

To integrate the corresponding measures, contact KLAUS Multiparking.

### Noise protection

Our systems fulfil the requirements according to DIN 4109 on condition that the building provides a sound reduction index R<sub>w</sub> of at least 57 dB(A).

### Ventilation / Ambient conditions

Environmental conditions for the area of multiparking systems: Temperature range +5°C to +40° C. Relative humidity 50% at a maximum outside temperature of +40° C

Any deviations from these values are to be coordinated with KLAUS Multiparking.

The ventilation system is designed in a way that it fulfils the requirements on safety at work. In addition, the constant exchange of air shall reduce the humidity and prevent any consequential condensation (corrosion).

### Grounding / Equipotential bonding

Within the area of the steel structure earth electrodes are to be provided every 10–15 m by the customer. They are to be designed according to DIN EN 60204. The locations of the earth electrodes are to be coordinated with KLAUS Multiparking.

### Availability

The availability of the system depends on the VDI directive 4466, January 2001 (art. 6.4). According to this the system will reach at least 98% (calculation acc. to VDI 3581) after an operating time of 6 months.

### Declaration of conformity / Manufacturer's declaration

The systems offered by KLAUS Multiparking are designed, in general, in accordance with the EC Machinery Directive 2006/42/EC and, in particular, with the DIN EN 14010.

### Dimensions

The dimensions specified by us are minimum dimensions. In order to meet the minimum finished dimensions the tolerances according to VOB, part C (DIN 18330 and 18331) as well as the DIN 18202 must also be observed.

## We reserve the right to change this specification without further notice

KLAUS Multiparking reserves the right in the course of technical progress to use newer or other technologies, systems, processes, procedures or standards in the fulfillment of their obligations other than those originally offered provided the customer derives no disadvantage from their so doing.